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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/022,760

12/14/2001

Je Young Chang

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2534

7590

11/24/2003

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EXAMINER

PATEL, NIHIR B

ART UNIT

PAPER NUMBER

3743

DATE MAILED: 11/24/2003

4

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/022,760

Applicant(s)

CHANG ET AL.

Examiner

Nihir Patel

Art Unit

3743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on September 22nd, 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 8-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 13-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of claims 1-7 and 13-18 in Paper No. 3 is acknowledged. The traversal is on the ground(s) that "if the search and examination of an entire application can be made without serious burden, the examiner must examine it on the merits, even though it includes claims to independent or distinct inventions". This is not found persuasive because claims 8 through 12 are drawn to an apparatus that is classified in a different subclass, which would require a different search. Since it would require a different search it would be a burden on the examiner.

The requirement is still deemed proper and is therefore made FINAL.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the a processor mounted to a printed circuit board; a bus coupled with the processor; and a memory coupled with the bus must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description 208 in figure 2. A proposed drawing correction or corrected drawings are required in reply to the Office action to

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avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Chao US Patent No. 5,095,404. Referring to claim 1, Chao discloses an arrangement for mounting and cooling high density tab IC chips that comprises a heat absorber 27 (mounting pad; see column 3 lines 30-40; figures 2 and 3) attached to a first end of a base 25 (column 3 lines 30-40; figure 4) the heat absorber 27 and the base formed of a thermally conductive material (see column 3 lines 30-40), wherein a width of the heat absorber is greater than a width of the base (see figure 4).

Referring to claim 2, Chao discloses an apparatus wherein the thermally conductive material is copper (column 3 lines 30-40).

Referring to claim 3, Chao discloses an apparatus wherein the heat absorber further includes a planar bottom surface, the planar bottom surface having a first surface area approximately equal to a second surface area of a heat producing region of a computer processor (see figure 4).

Referring to claim 5, Chao discloses an apparatus wherein the heat dissipator 37 and 39 (see figures 2 and 4) attached to a second end of the base 25 (see figure 4).

Referring to claim 13, Chao discloses an arrangement for mounting an cooling high density tab IC chips that comprises a processor mounted to a printed circuit board (column 3 lines 1-15); a bus coupled with the processor; a memory coupled with the bus; and a heat absorber 27 formed of a thermally conductive material and coupled with the processor, the heat absorber attached to a first end of a base formed of the thermally conductive material, wherein a width of the heat absorber is greater than a width of the base (see figures 2, 3, and 4; column 3 lines 30-40).

Referring to claim 14, Chao discloses an apparatus wherein the thermally conductive material is copper (column 3 lines 30-40).

Referring to claim 15, Chao discloses an apparatus wherein the heat absorber 27 has a bottom surface, the bottom surface having a first area approximately equal to a second surface area of a mating surface of the processor (see figures 2, 3, and 4).

Referring to claim 16, Chao discloses an apparatus that comprises a heat dissipator attached to a second end of the base (see figures 2 and 4).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6, 7, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chao Us Patent No. 5,095,404 in view of Furuya US Patent No. 6,504,720.

Chao discloses the applicant's invention as claimed with the exception of providing a plurality of fins formed of the thermally conductive material (copper, a copper alloy, or aluminum), the plurality of fins attached to a bottom surface of the heat dissipator, the fins having a length approximately equal to the width of the base.

Furyua discloses a cooling unit for cooling heat generating component circuit module including the cooling unit-and electronic apparatus mounted with the circuit module that does provide a plurality of fins formed of the thermally conductive material (copper, a copper alloy, or aluminum), the plurality of fins attached to a bottom surface of the heat dissipator, the fins having a length approximately equal to the width of the base (see figure 5; column 7 lines 45-55). Therefore it would be obvious to modify Chao's invention by providing a plurality of fins formed of the thermally conductive material (copper, a copper alloy, or aluminum), the plurality of fins attached to a bottom surface of the heat dissipator, the fins having a length approximately equal to the width of the base in order to increase the heat transfer process.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over chao US Patent No. 5,095,404 in view of Dibene, II et al. US Patent No. 6,304,450.

Chao discloses the applicant's invention as claimed with the exception of providing integrated heat spreader attached to a silicon die.

Dibene discloses an inter-circuit encapsulated packaging that does provide integrated heat spreader attached to a silicon die. Therefore it would be obvious to modify Chao's invention by providing integrated heat spreader attached to a silicon die in order to increase the heat transfer process.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Nihir Patel whose telephone number is (703) 306-3463. The examiner can normally be reached on Monday-Friday from 7:30am to 4:30pm. If attempts to reach the examiner by telephone are unsuccessful the examiner's supervisor Henry Bennett can be reached at (703) 308-0101.

NP
November 18, 2003


Henry Bennett
Supervisory Patent Examiner
Group 3700